



THE RARA RAG

Newsletter of The Rochester Amateur Radio Association, Inc.
Founded in 1931

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Mountaintop Repeaters

By Gary Skuse, KA1NJL
Vice President, RaRa

If you use VHF and/or UHF repeaters each week please raise your hand. OK, good. Do you ever wonder which individuals, not local clubs, devote their own time and money and have the requisite passion to keep them on the air? Yeah, me too. Now lower your hand and use it to scroll through the following description of the presentation you will hear at the August RARA meeting. The following was provided by Mike, W2HYP and Jim, W2COP...

Do you ever wish you could find a 2-meter repeater that 'just worked' everywhere in town? One that you could also use to dial into other cities around the world? One that still worked when there was no grid power? Such an animal does indeed exist! Look no further than the 145.11 repeater on Bristol Mountain with its 10,000 sq. mi. mobile footprint where weak signals are easily forgotten.



The August RARA meeting will give you an inside look at this beast, its location and thus a surprise you may not know. We will also explore from 1975 to today its twin at the CK Mees Observatory on Gannett Hill which is even higher. Our presenters Mike Rink – W2HYP and Jim Stefano – W2COP, who have built these systems, will discuss the work that goes into making a repeater so that you can understand it all that much better. There will be lots of photos, coverage maps and even some block diagrams to share, leaving nothing to the imagination. The session will wrap up with a discussion about the new 6-meter repeater at Bristol and future enhancements like an HF remote at Mees.

Please join us for this evening of repeater paradise on Friday August 2nd at 7:00pm at the usual location, the Henrietta Fire Company #1, located at 3129 East Henrietta Road near Lehigh Station Road.

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RARA Meeting
August 2nd, 7PM

Henrietta Fire Co. #1
3129 East Henrietta Rd. (15A)



The Prez Sez

By Bill Marinucci, WB2GHC
President, RaRa

Summer is in full swing now, but it sure is going by quickly. By the time this article is published, the RaRa Picnic will be in our history book. Looking forward, we have several RaRa events still ahead. There will be our August meeting on Friday, August 2nd, at 7:00 PM. Our September meeting will be on Friday, Sept. 6th. This meeting will be an important one because it will be our annual business meeting. Our financials will be presented, and the new Board of Directors will be voted in, and it will go into effect on October 1, 2013. The September *Rag* will have a brief 'bio' of all the candidates running for positions on our Board.

Also in September are two additional events, the RaRa Tailgate Party and the RaRa Banquet. The RaRa Tailgate Party is on Saturday, September 14th and will be held at the Shriner's Lodge on Bay Road in Webster. There is a \$5.00 per person gate fee, 100% of which goes to the Shriner's Children's Hospitals. This is our opportunity to give back! Here's the chance to buy and sell items you need or want to part with, as well as to socialize with others in the ham community. Both breakfast and lunch will be available as well. Mangia Mangia!

The 3rd annual RaRa Banquet will be held on Friday, September 27th, at the Burgundy Basin Inn. We will be having a dinner buffet with something for everyone's appetite. There will also be a cash bar for our social hour before dinner. We had a great time last year, good food, and a good time to socialize. Be on the lookout for more information!

I would now like to announce the winner of the RaRa Memorial Scholarship for 2013. Please join me in congratulating Michael Bock, KD2DBU. Michael is working toward his Bachelor of Science degree in Computer Engineering Technology at RIT. He comes from a ham family, and recently upgraded to General Class at the Ham-O-Rama 2013. Michael will receive a check at the August RaRa Meeting in the amount of \$1000. I also wish to thank all of the applicants for this award, and encourage them to submit their applications for the 2014 award next spring.

Enjoy the summer, stay cool, and be safe.

73

Club Picnic review:

The rain sure didn't dampen attendance at the annual RaRa Family Picnic on July 20. A new modern record was set with near 80 members, friends and family. Our new location in Stewart Lodge at Mendon Ponds Park provided ample indoor space to keep everyone dry – except the three brave souls manning the grill in the downpour. The newly expanded menu was a hands down hit with the crowd as the only leftovers were a few lettuce leaves. Look for an even greater menu next year!

Calendar of Events

Aug 2 **RaRa General Meeting**
7:00 PM - Henrietta FD #1
3129 E. Henrietta Rd

Aug 7 **RaRa Board of Directors**
5:30 PM, RIT Engineering
Hall, Room 2110

VE News

By Ken Hall W2KRH

At the RARA Ham-O-Rama held on June 15th we had 25 candidates of which 17 passed. We had 9 new Technicians, 5 who upgraded their licenses to General and 3 who upgraded their licenses to Extra. Our next test session will be on September 21st in room 9-3139 at RIT. Wishing everyone a safe and happy summer.

Edward	Drake	KC2EHP	E
Richard	Frey	WA2AAU	E
Ted	Sheflin	AC2LJ	E
Michael	Bock	KD2DBU	G
Raymond	Fournier	KC8KWN	G
John	Herzog	KD2EEN	G
John	Hess	KC2WEX	G
Jeffrey	Lavis	KD2COE	G
Michael	Bezer	KD2EHO	T
James	Cook	KD2EHP	T
Stephen	Coppola	KD2EHQ	T
David	Dellefave	KD2EHR	T
Tyler	Ekwel	KD2EHS	T
Larry	Fredrickson	KD2EHT	T
Michael	Friedland	KD2EHU	T
Bret	Robison	KD2EHV	T
Brett	Staple	KD2EHW	T

Licensing Classes: Consider the Benefits

By Bill Kasperkoski WB2SXY

Get your family members, co-workers, students, scouts, and friends licensed. They always wanted their Ham Radio license, but they just did not know how to go about it. Now you can help them, so let them know they should sign up for RARA's licensing class this fall. Are you interested upgrading to the next level but not sure you can pass the exam without help? You can bet you are not alone; and RARA is ready to help with instructors and resources standing by. Our licensing courses are held at the Henrietta campus of the Rochester Institute of Technology and consist of 10 weekly, two hour sessions. Classes are taught for all license levels: Technician, General, and Amateur Extra, given enough signups, using the ARRL License Manuals, which are available at a discount through RARA.

Class space is limited and reservations are highly recommended. More details will follow as the courses will start in September. Watch the web page and newsletter or call the telephone hotline at (585) 210-8910 for more information.

Licensing courses are ****FREE**** to current members and only \$15.00 for non-members; Student memberships (pay attention RIT, U of R, MCC and high school club members) start at, umm... **FREE!** As an incentive to get on the air quickly, RARA also helps subsidize the cost of a small two-way radio for the Technician course graduates. Exams will be held on the Saturday morning following the last class.

RaRa LOGO Items



Don't feel left out- get your RaRa logo items today!

[\(Click here to shop now!\)](#)

Silent Key

William R. Miller
KA2HSK
July 18, 2013

Activate, on the “8’s”: A guide to VHF Fun!

By Ev Tupis W2EV

You may have seen the announcements on the RaRa-General e-mail list asking you to power-on your 2-meter FM transceiver for an hour and make a few contacts. What’s it all about? It’s about giving hams with VHF FM radios an opportunity to have some non-repeater, simplex fun!

Three times a year, in January, June, and September, the American Radio Relay League (ARRL) sponsors contests that are geared toward VHF licensees. While the typical participant uses SSB or CW, there is a brand new entry class called “FM Only” designed to appeal to folks who may enjoy a little radio sport while not having a high power, high performance contest-grade station.

What does it take to participate in this category? Simple FM radios with no more than 100 watts of output power. In this category, participants contact others on the 6-meter, 2-meter, 222 MHz or 440 MHz bands. The same station can be re-worked on the other bands for additional contest credit!

You don’t need all four bands to participate; start with just 2-meters or 2-meters and 440 MHz if you have a dual-band radio. Put up an outside antenna for best range. Get a log sheet ready to document your contacts and “activate on the 8’s” ... 8:00 pm on the Saturday, 8:00 am on the Sunday and 8:00 pm on Sunday night.

The September VHF contest is Saturday, September 14th (1800z, 2:00 pm ET) until Monday, September 16th (0259z, Sunday 11:00 PM ET). While SSB and CW operators will be busy throughout this time, FMers are encouraged to simply “activate on the 8’s” as described above. Of course, there’s nothing wrong with activating at *any* time during the contest ... but following this guidance will get fellow FMers all active at the same time, maximizing the fun-quotient for everyone!

Get ready! Use the time between now and September 14th to put up an outside antenna or add a band! Even a hand held FM transceiver can be heard, though it can be heard significantly better if you use an outside antenna. High power is not necessary; the #1 station in the last January VHF contest used only 25 watts on 2-meter FM (to a simple 5/8 wave base station antenna mounted on the roof.

Here’s an important hint: If you have a smart phone with an electronic calendar, schedule these three dates / times in an alarmed event! That way, you’ll be sure to be active when others are on-the-air, too!

You don’t need to compete in order to participate. There are plenty of people who activate “just to hand out some points”. Some will log using paper, while others will use computer logging systems such as those available for free at www.N1MM.com, <http://www.qsl.net/w3km/> or similar.

September will be your last VHF contest opportunity this calendar year. Use it as a “tune up” for the 2014 January VHF contest (considered “the big one”). Full rules are available at <http://www.arrl.org/september-vhf>. See YOU, on the air!

Band	FM Simplex Frequency (Typical Ant. Polarization)
6 Meters	52.525 MHz (vertical), 50.3 MHz (horizontal)
2 Meters	146.55 MHz (vertical), 146.58 MHz (vertical)
222 MHz	223.5 MHz (vertical)
440 MHz	446.0 MHz (vertical)

Scanning Report: Crystals Still an Option!

By Jim Sutton N2OPS jim@otrym.org

In the mid 1960's a transition began that would change the world of listening to police and fire calls forever; the scanner. The first scanner was the Bearcat I, a single band scanner that would scan up to 8 channels. This would do the same as 8 single frequency receivers. What frequencies you heard was determined by the crystals that were installed in the radio. Most listeners chose the local police and fire frequencies, while others would choose railroads, taxis, mobile telephones, and some business frequencies.

CRYSTAL SCANNERS

For 14 years I had the privilege of setting up thousands of scanners for listeners at Christiano Hardware in Leicester, NY. Once my customer selected a scanner model we would proceed to install the crystals for the agencies they wanted to hear. The tool of the trade was the needle nose pliers that allowed me to install crystals with ease. This required maintaining a large inventory of crystals for my county and the surrounding counties. For crystals I did not stock I sold crystal certificates where the customer would enter the listening frequency and scanner model and mail it to the crystal manufacturer. A crystal for that frequency would arrive in his mailbox shortly. My crystal supplier was RCD, which later became RXD in Indianapolis IN.

SCANNER BANDS

There were two scanner bands when I began, VHF high and low. Low band 30-50 MHz and high band 148-174 MHz. Shortly came the UHF band covering 450-470 MHz. Low band was the norm in rural areas due to its longer range and high band was the choice in urban and suburban settings. UHF later became the new choice in urban settings as the shorter wavelength did a better job of penetrating buildings.

BEARCAT AND REGENCY CRYSTALS

I needed to maintain two separate inventories of crystals. Crystals for the Bearcat scanners with a 10.8 intermediate frequency (IF) and crystals for Regency and pretty much every other make of scanner including Radio Shack scanners, with a 10.7 IF. I had 4 sets of parts drawers with a separate drawer for each frequency. Bearcat crystals were in the front half of each drawer and Regency crystals were in the back half. Crystals had a crystal frequency and a listening frequency. A mathematical formula determined what the listening frequency was. For example, to listen to the low band frequency of 46.16 in a Bearcat scanner the crystal frequency would be 56.96. This was the listening frequency of 46.16 plus the IF of 10.8 for the crystal frequency of 56.96. $46.16 + 10.8 = 56.96$. High band crystals would start with the listening frequency, minus the IF, divided by 3. For example the Bearcat crystal frequency for 154.950 would be 48.05. $154.950 - 10.8 / 3 = 48.05$. For UHF the crystal frequency is determined by taking the listening frequency, minus the IF, divided by 9. For example the crystal frequency for 460.250 would be 49.938888. $460.250 - 10.8 / 9 = 49.938888$. Nearly all crystals have the listening frequency printed or stamped on the crystal. Some have both the crystal and listening frequencies on the crystal. A rare few have only the crystal frequency which only served to confuse the scanner owner if he tried to change crystals. The formulas above will help you determine the listening frequency.

Some typical ID's for Regency TMR 10.7 IF crystals are JK-1, MCS-1, MRH-1, MRL-1, MRU-1, RCD-1, RXD-1 TME, TMR.

Some typical ID's for Bearcat BCT 10.8 IF crystals are JK-5, MCS-2, MRH-2, MRL-2, MRU-2, RCD-2, RXD-2, BCT.

Some ID's would incorporate the letters L, H and U for low, high or UHF bands.



SWAPPING CRYSTALS

Low band crystals from a Bearcat scanner will get a frequency 0.100 MHz higher in a Regency scanner. The 46.16 Bearcat crystal would get 46.26 in a Regency scanner. On UHF the 460.250 Bearcat crystal would receive 460.150, 0.100 MHz lower in a Regency scanner. High band crystals are also interchangeable, but will not be exactly on frequency. The 154.950 crystal will get 154.850 in a Regency scanner. That would bring in 154.845, which is 0.100 higher and slightly off frequency, but it also may bring in 154.860.

ODD CRYSTALS

Some listening devices such as the Listen-in and Little Tiger converters used totally different crystal formulas.

GETTING TO THE CRYSTALS

The standard Bearcat III required removing the cover after loosening a small screw on the bottom of the cabinet. Regency mobile scanners would require taking out the two mounting bracket screws on either side of the scanner and then sliding off the cover. Some scanners had an access door that did not require taking the cover off. Crystal scanners receive from one to three bands, low band, high band, and/or UHF.

END OF AN ERA

The last crystal scanner model I sold was the Regency R-806. What a great scanner. In fact I am listening to one on my desk as I write this story. It had easy to understand pin configuration to set the bands. Crystal scanners were simple to understand and operate, but they had one major drawback. You could only listen to what the crystals would receive. Additional crystals cost around \$5.00 each. That could become quite costly when changing locations or selling your scanner to someone in a different area. Early programmable scanners were not well received by many of my customers. The sensitivity was sometimes poor and the scanner would lose the program if a memory battery was not installed or lost its power over time. Today's complex systems would make buying crystals a major investment or as in the case of trunked radio systems crystal scanners would not be able to follow the action like trunk tracking scanners do today.

SOURCES OF CRYSTALS TODAY

Some listeners swear by their older crystal scanners and swear *at* the newer programmable scanners! For those of you fortunate enough to have the option of using crystal scanners, finding crystals can be quite a challenge. Local scanner and CB radio shops quite often have an inventory of crystals as well as used crystal scanners. A search of the Internet will locate sources crystals ranging from a few to thousands to choose from. I can personally recommend the following sources of scanner crystals: Gerry Oliver at G&G Communications of LeRoy NY, ggcomm@iinc.com and Tim DeLong of Indianapolis IN, w9nes@Comcast.net. G&G Communications usually has a selection of used crystal scanners to choose from.

Crystals may also be found at the online auction place at very good prices. One seller has hundreds to choose from. Ask the scanner seller for a list of crystals in the scanner he has listed. If he is not sure of what crystals are in the scanner, the location of the seller may give an idea of what crystals are installed.

Crystal prices today range from a typical \$5.00 each with one outrageous site advertising crystals for \$8.00 each. Be sure to note the shipping costs involved before ordering. Perhaps someday there will be a "crystal exchange" group where we could list our extra crystals and advertise for the crystals we need. Estate sales, auctions, Goodwill and Salvation Army stores, yard sales and hamfests are good local places to search for crystal scanners. Even a dead scanner may yield some good crystals.

Until next time 73 to thee.



News from our friends at other area clubs...

Monroe County ARES / RACES News

The Monroe County Amateur Radio Emergency Service, Inc. holds its meetings on the fourth Thursday of each month. Anyone interested, members and non-members, are welcome to attend.

REMINDER: We do not meet during the summer months of July or August.

The next ARES Meeting will be held on: **Thursday, September 26, 2013, at 7:00 PM.** Meetings are held at the **Greater Rochester Chapter of the American Red Cross HQ, 50 Prince Street, Rochester, NY 14607.** (Located behind the Rochester Auditorium Theatre, 885 Main St. E.)

ARES NET: Monroe County ARES/RACES meets on the air every Thursday of the month at 9:00 pm, on the 146.61 MHz (-) 110.9 Hz PL repeater. The only exception to that are nights when we hold our regular meeting, generally on the 4th Thursday of the month.

WEB: www.monroecountyemcomm.org

NBEMS: Want to learn about Narrow Band Emergency Messaging System (NBEMS)? It's the latest and easiest way to "Go Digital!" Bring your laptop computer and 2-M handheld transceiver. We will conduct an NBEMS clinic after every meeting.

SIARC 60th Anniversary!

By Tom Sanders KB2NCI
President, Squaw Island Amateur Radio Club

We would like to invite *RARA Rag* readers to help the Squaw Island Amateur Radio Club celebrate its 60th year anniversary on August 17th. We will be holding a Special Event station and have several radios set up (see August QST for details). We will also be holding our annual club picnic that day at the home of Steve, WB2VMR, 6129 County Road 41 (Boughton Hill Road) in Farmington. All are welcome to come and help us celebrate. Talk-in will be on the K2BWK repeater, 146.820 MHz (110.9 Hz PL tone). We plan to run the special event station from 9 am to 7 pm or so. The picnic part will be in the late afternoon. People can come any time or just try to work us on the air.

Editor's Note:

Free press is available for your club! We welcome brief updates and meeting notices from all area ham clubs. Just send your input to editor@rochesterham.org. When preparing your article, please remember to keep it short, and assume that readers know nothing about your club. The article should be focused toward non-members, and not your own current members... that's what your newsletter is for! We hope all area clubs will take advantage of this opportunity to interest new members in joining their ranks.

73, -Kevin



The Amateur's Code

Originally written by Paul M. Segal, W9EEA (1928)

The Radio Amateur is:

CONSIDERATE	Never knowingly operating in such a way as to lessen the pleasure of others.
LOYAL	Offering loyalty, encouragement and support to other amateurs, local clubs and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.
PROGRESSIVE	With knowledge abreast of science, a well built and efficient station and operation beyond reproach.
FRIENDLY	With slow and patient operation when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.
BALANCED	Radio is an avocation, never interfering with duties owed to family, job, school or community.
PATRIOTIC	With station and skill always ready for service to country and community

Visit the RARA Website!

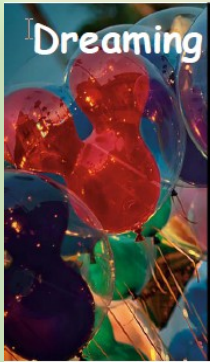
Did you know that your club's website (www.rochesterham.org) offers these features and more?

- ✓ Photos of meetings & events (you might be in there!)
- ✓ Info on upcoming meetings/programs
- ✓ Rochester Hamfest information!
- ✓ Online membership & renewal
- ✓ Track and redeem your Reward points
- ✓ Public service info & sign-up
- ✓ VE testing info
- ✓ Back issues of the *Rag* in PDF
- ✓ Officer contact info
- ✓ List of past presidents (how many do you remember?)
- ✓ Online membership directory
- ✓ Order RARA logo products (hats, shirts, and mugs)
- ✓ Useful Internet links
- ✓ Ham Radio 101—tons of tutorial info, plus net & repeater listings



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wb2ghc@arri.net
 Vice-President: Gary Skuse, KA1NJL 223-1511
ka1njl@arri.net
 Secretary: Len Crellin, KC2PCD 267-9805
kc2pcd@rochester.rr.com
 Treasurer: Ken Hall, W2KRH 289-3801
ken@w2krh.com

BOARD OF DIRECTORS:

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wcc5661@rit.edu
 Jim DiTucci, N2IXD 426-7956
n2ixd@arri.net
 Kim Hollingsworth, KC2ZLV 210-8910
artisan157@gmail.com
 Bill Kasperkoski, WB2SXY 381-6553
wb2sxy@arri.net
 Ian MacKenzie, KB3OCF 210-8910
kb3ocf@gmail.com
 Ross Mazzola, KC2LOC 247-8323
kc2loc@arri.net
 Frank Schramm, WB2PYD 270-1045
wb2pyd@gmail.com

DEPARTMENT HEADS:

Awards / Raffle Administrators Jay Hamill, KC2TCM
 Sabrina Hamill, WD2STK
 Club Historian Ed Gable, K2MP
 Club Station Trustee Jim DiTucci, N2IXD
 Education Coordinator Pam Kasperkoski, W2PHK
 Hamfest Producer Charlie Escriva, KB2SOZ
 Public Service Coordinator Joe Walker, KA8WJH
 Phone: 585-385-6804 email: KA8WJH@arri.net
 License Testing Coordinator Ken Hall, W2KRH
 Membership Secretary Lisa Schramm, K2BGR
 Media Communications Len Crellin, KC2PCD
 RaRa RAG Managing Editor Kevin Carey, WB2QMY
editor@rochesterham.org
 RaRa RAG Layout Editor Frank Schramm, WB2PYD
 Refreshments Coordinator Tom Austin, KA2GXX
 Webmaster Frank Schramm, WB2PYD

RaRa meets at 7pm on the first Friday of each month;
 come join us at:

Henrietta Fire Company No.1
3129 East Henrietta Rd.
Henrietta, NY 14467

[Get Directions](#)

Rochester Area Radio Club Contacts

Antique Wireless Association (AWA)

Lynn Bisha, W2BSN lbisha@rochester.rr.com

Drumlins Amateur Radio Club Ltd. (DARC)

Glen Bruemmer, KC2YGH kc2ygh@yahoo.com

Fisherman's Net Amateur Radio Club

Jim Sutton, N2OPS jim@otrym.org

Genesee Valley Amateur Radio Assn

Bill Boyd, N3DSP N3DSP@lafireline.net

Monroe County ARES

Jim DiTucci, N2IXD n2ixd@arri.net

Rochester Amateur Radio Association (RaRa)

Frank Schramm, WB2PYD wb2pyd@arri.net

Rochester DX Association (RDXA)

Mark Hazel, K2MTH mthazel2151@yahoo.com

Rochester Radio Repeater Association (RRRA)

Bob Shewell, N2HJD

Rochester VHF Group (RVHFG)

John Stevens, WB2BYP wb2byp@arri.net

Squaw Island Amateur Radio Club (SIARC)

Steve Benton, WB2VMR sbenton2@rochester.rr.com

XEROX Amateur Radio Club (XARC)

Ned Asam, W2NED w2ned@frontiernet.net

September Rag Deadline August 15, 2013

